Appendix I-A

Commissioning Evaluation Criteria

Commissioning Evaluation Criteria

The Commissioning Evaluation Criteria consists of a table of elements (consisting of a reference number/letter) each with a heading, which is bolded and underlined. The evaluation criteria are the guidelines under each heading used by the field unit evaluation official (EO) to help them complete the commissioning checklist (see Appendix I-B). There are two more columns, one that pertains to the type of office to which the criteria apply, the second is the suggested staff the EO should coordinate for that particular element. A third column is included starting with Element 3a pertaining to the commissioning test procedure that can be performed by the site. For the latest version of the test procedure, refer to the AWIPS commissioning home page: **www.awips_commissioning.nws.noaa.gov**

LEGEND

Criteria Apply to:		Input Provided by:	
W	WFO	M/H	MIC and/or HIC
R	RFC	S/D	SOO and/or DOH
N	NCEP	E	ESA
C	CWSU	W	WCM
D	DCO	F/HY	Forecaster and/or Hydrologist
WM	WSCMO	DA	DAPM
WS	WSO	HM	HMT
All	Any Site	R	Regional Headquarters
		N	National Headquarters

1.	Successful Completion of Site Component Acceptance Test	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.			
1a	**Signed Acceptance Report DD250** Verify a copy of the System DD Form 250 (including the Inventory, Test results, deficiency reports, AWIPS Certificate of License, and CD-509s for property transactions) has been signed by a representative of the AWIPS Program Office (APO) and left with the office. Verify through the regional office, as necessary, that this has indeed been accomplished. All operationally significant deficiencies listed as exceptions (open items) on the signed DD Forms 250 for facilities and system have been satisfied. If a copy of this package is not available, contact the APO for another one at (301) 713-3409.	All	M/H
1b	**Major Component Verification** Verify all components scheduled for delivery by the contractor (including the LDAD suite of equipment) have been delivered to the site. Do this by reviewing Appendix A, NWS AWIPS Site Configurations and Communication Networks, which lists the equipment that should be issued to the site based on the configuration—WFO, RFC, NCEP—then perform a walk-through of the office. There is no requirement to access internal subcomponents of the system. Verify that software version 4.2 (including point release updates to this load) has been installed on the system. Document the version number of this release in Block 4 of the AWIPS Site Component Commissioning Recommendation/Approval Form.	All	S/D, E
1c	**Property Accounting** Appropriate property transaction request form, supplied by the APO, for AWIPS has been signed by the Regional Director (RD), Meteorologist-in-Charge (MIC), or designee. Ensure all major components have been bar-coded as indicated in Engineering Handbook (EHB-13).	All	M/H, R
1d	**Initial Consumables** Check to see that the consumables, and the quantities listed, as described in EHB-13, Section 1.0 are on-site. If these quantities are not on-site, order them and verify receipt prior to the system commissioning.	All	S/D, E

2. Adequate Availability of Trained Operations and Maintenance Personnel	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.		
2a **CUT Training** At least two persons have completed Centralized User Training (CUT) and the appropriate level of upgrade training consistent with the AWIPS commissioning software load. At least two complete and current sets of CUT materials are available on site.	W, R, N	S/D, E
2b **OUT Training** 1. All operational staff, e.g., forecasters, hydrologists, Data Acquisition Program Manager (DAPM), and Hydrometeorological Technician (HMT), have completed On-site User Training (OUT) or a recognized equivalent provided by someone who has completed CUT. Exceptions may be granted by the RD in consultation with the EO. A possible exception could be a recently hired employee. Exceptions must be noted in the Remarks section. 2. Provide instructor lesson plans to each site.	W, R, N	S/D, DA
2c **WHFS Training** At least two WFO and one RFC staff have completed appropriate WFO Hydrologic Forecast System (WHFS) training on available hydrometeorological applications required for the performance of assigned duties.	W, R	S/D, F/HY

2. Adequate Availability of Trained Operations and Maintenance Personnel	Criteria Apply To:	Input Provided By:

2d   **Operational Proficiency**
1. All meteorologists, hydrologists, and/or RFC operational personnel meteorologists have successfully demonstrated proficiency in the use of AWIPS and can perform their hydrometeorological function. Exceptions may be granted by the RD in consultation with the EO. A possible exception could be a recently hired employee. Exceptions must be noted in the Remarks section.
 	
2. Operational staff are familiar in the areas listed below in accordance with the System Manager's Manual and the policy concerning interactions between operational staffs and the NCF (yet to be written):
 	
   a. System restart and shut-down procedures.
 	
   b. System recovery during degraded operations.
 	
   c. Reconfiguration of synchronous and asynchronous communication lines.
 	
3. Operational staffs are proficient in completing the NCF Worksheets and resolving problems associated with their system and the NCF.
	W, R	S/D, E, F/HY

2e   **UNIX Training**
1. The electronics systems analyst (ESA) and assistant administrator have successfully completed or tested out on:
 	
   a. Intro to UNIX,
 	
   b. UNIX System Administrator, and
 	
   c. AWIPS System Support (ESA only).
 	
2. Exceptions may be granted by the RD under consultation with EO.
	W, R	E

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.			
3a **Local Data Acquisition and Dissemination (LDAD)** **Note**: Before interfacing systems, ensure applicable modification notes pertaining to LDAD are available. 1. **Data Collection Platforms** For each system listed in Attachment xxx, verify the LDAD can receive data/products from those applicable to your site. Refer to the *Commissioning Readiness Report* (CRR) for determining which systems, and from which specific locations, must interface into the LDAD. Make sure that each system that must be interfaced or dialed into LDAD is, in fact, communicating its data/products correctly. Have the HMT/DAPM validate that data/products for each system interfaced into LDAD can be displayed on AWIPS workstations. Complete the *LDAD Configuration Form* for each applicable system.	B.1.2, B.5.1.3 B.5.1.4 B.5.3.1 B.5.3.4 B.5.3.5 B.5.3.6 B.5.6	W, R	S/D, E, DA
2. **ROSA** Verify AWIPS can receive co-op observations, both by a Remote Observation System Automation (ROSA) modem (ROSA Pad) and by dual-tone multifrequency (DTMF) converter (touch-tone pad) from cooperative observers as currently supported by the site's PC-ROSA. Verify the PC-ROSA voice prompts and error notification messages are operational on AWIPS. Verify ROSA data are stored, and sent with the proper WMO header via AWIPS Communication Network (ACN) to the NCF (addressed to "NCF Default") for subsequent distribution/dissemination. Verify sufficient LDAD terminal server ports can be configured to support the site's current complement of PC-ROSA modems and DTMF converters. Verify AWIPS documentation is maintained on-site to configure AWIPS ports and implement the connection(s).	B.5.1.1		
3. **MESONET** Verify AWIPS can ingest and store data from MESONETs that are currently accessed by the site. MESONET connections may be from AWIPS to a local MESONET computer, or to a remote device from which AFOS currently acquires data. Verify AWIPS stores the MESONET data, and that the data are made available for display at AWIPS workstations. Verify AWIPS documentation is maintained on-site to configure AWIPS ports and implement the connection(s).	B.5.1.2		

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
4. **Spotters** Verify AWIPS can ingest and store data from a site's Spotter Base Station PC, in the same manner in which AFOS ingests and stores the data. Verify AWIPS makes the data available for display at AWIPS workstations. Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s).			
3b **General LDAD Requirements** 1. The site LDAD can: a. Acquire data automatically when permitted by the observation systems.	B.5.1.2, B.5.1.3 B.5.1.4, B.5.3.1 B.5.3.4, B.5.3.5 B.5.3.6, B.5.6, B.5.8	W, R	S/D, DA, E
b. Receive data in response to requests sent to observation systems that accept requests.			
c. Disseminate data through all existing interfaces with external users.	B.5.3.3		
d. Automatically disseminate data to external users.	B.5.3.3		
e. Disseminate data to external users upon their request.	B.5.3.3		
f. Specify dissemination control parameters.	B.5.3.3		
g. Disseminate designated hazardous weather products to appropriate external users who are automatically selected by AWIPS based on the geographic areas affected by the products.	B.5.3.3		
2. Text and <u>graphics</u> products (GIF files, grids) must be available for access through the www interface to LDAD.			
3. LDAD documentation is sufficient for your field site to generate meta data needed to translate any of their local source into the correct format [comma-separated values or Standard Hydrometeorological Exchange Format (SHEF)] for the generic LDAD decoder. Also, the LDAD documentation describes the local configuration to allow dial users to by-pass the bulletin board and open a TCP/IP /x-window session.			
4. **Internet** If the site currently has Internet access from devices on the local LAN, verify that the local LAN has been integrated with the LDAD LAN and the LDAD firewall has been configured to	B.5.3.2		

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
allow a secure connection between the Internet and AWIPS. With Internet connectivity established, verify that Internet access from an AWIPS workstation can be established. Verify that AWIPS documentation is available on-site, or at the regional headquarters (RH) (if the RH has firewall configuration/administration responsibility) to implement Internet access from AWIPS.			
3c **Hydrologic Systems** 1. Verify AWIPS through the LDAD can access and retrieve hydrologic products from the IFLOWS Base Station or ALERT Base Stations for use by the site. 2. **ALERT/IFLOWS** Verify AWIPS can ingest and store data from the collocated ALERT/IFLOWS PC. Verify the data are made available for display at an AWIPS workstation and that the data are sent via ACN to pre-designated sites with the proper WMO header and addressing (such as "NCF Default"). Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s).	A.6.2 B.5.1.3 B.5.1.4	W, R	S/D, DA
3d **Upper-Air—MicroART** 1. Verify the Microcomputer-based Automated Radio Theodolite (MicroART) system has been interfaced to the AWIPS through the LDAD and is providing all upper-air coded messages correctly. If this office does not have this system, enter "**x**" under the N/A column of the commissioning checklist. 2. Verify AWIPS can establish a (dial or dedicated) connection to the MicroART PC from which the site's AFOS obtains data. Verify AWIPS ingests and stores the upper-air observation and distributes the data using the proper WMO header and the "NCF Default" address. Verify AWIPS makes the upper-air data available for display at an AWIPS workstation. Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s).	B.5.2.1	W	S/D, DA
3e **Coastal Marine Networks** Verify any Coastal Marine Networks, including C-MAN, Marine Report Program (MAREP), etc., can be accessed by the LDAD to retrieve marine-related products for input into the host AWIPS. If this office does not have this system, enter "**x**" under the N/A column of the commissioning checklist.		W	S/D, DA
3f **Automated Surface Observing System/Other Surface Systems**	B.5.2.2	W, R	S/D, DA

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
1. Verify all ASOSs required to be interfaced to AWIPS through the LDAD as delineated have been transitioned from their respective PACE systems or other connections. Refer to the CRR for determining which systems from which specific locations must interface into the LDAD. Ensure that each system that must interface or dial into LDAD is, in fact, communicating its data/products correctly. 2. Verify all ASOS products required for input into AWIPS are being transmitted correctly. These products include Meteorological Aviation Reports (METAR), Aviation Selected Special Weather Reports (SPECI), SHEFs, and Daily/Monthly summary messages (DSM/MSM). Verify these products can be transmitted using the ACN capability to other NWS locations and to the NCF/SBN.			

3g	**WSR-88D Interface**
	Note: Before beginning this evaluation, ensure that the following has occurred at your site:
	    a. NEXRAD Build 10 has been installed on your Radar Products Generator (RPG) successfully.
	
	    b. A recent radar calibration has been conducted on radars currently associated with your site.
	
	    c. Preparations are under way to deactivate the Principal User(s) External Systems (PUES) lines connecting the NEXRADs with the AFOS system.
	
	    d. All A/B switches have been configured, correctly, for radars associated with AWIPS.
	
	1. To validate the following radar interface elements, the 56-kbps line(s) to the primary radar(s) under user control position (UCP) at the WFO must be connected. River Forecast Centers (RFC) and National Centers must validate using the 14.4-kbps modem as the minimum data rate. AWIPS can acquire the following WSR-88D radar data:
	
	    a. Image products
	
	    b. Geographic-based overlays
	
	    c. Non-geographic-based overlays
	
	    d. Alphanumeric products
		B.3.1
		B.3.2
			W, R	S/D, DA, F/HY

3. Satisfactory Performance of System Functions and Interfaces		Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
	e. Cross-section products			
	2. Site must be able to acquire radar data from multiple radars via associated connections, non-associated connections, and ACN.			
	3. Demonstrate the capability to dial all authorized RPG (both as single and multiple radars) at the 14.4-kbps rate and acquire radar data from each one for display and data basing.			
	4. Verify the Radar Coded Message (RCM) and Digital Precipitation Array (DPA) products are being received by AWIPS and transmitted over the ACN to the RFC and the NCF. To ensure correct receipt of RCM products, the ACN must have received 96 % of these at the NCF.			
	5. AWIPS can emulate the Principal User Processor (PUP) function command and control capabilities for the NEXRAD RPG in compliance with OM requirements document on PUP functionality in AWIPS. Requirements Performance Summary (RPS) list, Operational Trouble Report (OTR) command, and control capabilities are the only ones required.			
	6. AWIPS can use interactive, graphical methods to define unique "alert areas" for monitoring of NEXRAD data. Alert-paired products have a distinct audible alarm for weather features.			
	7. AWIPS can monitor the communication functions of the Radar Data Acquisition (RDA), RPG, and NEXRAD communication functions via the General Status Message, Request Response Message, Alert Message, and Product List Message received from the RPG.			
	8. If you are at an RFC, obtain radar data every volume scan (base reflectivity; 1-hr, 3-hr, storm total precipitation, composite reflectivity) from associated radars in your area of responsibility (refer to the CRR) in order to create a mosaic of the radar images over your entire area.			
3h	**Satellite Data** 1. Verify the SBN downlink is receiving satellite products reliably, stores products, and makes them available over the LAN to all workstations. Validate the reliability by contacting the regional AWIPS focal point for output from the Product Availability Monitoring System (PAMS), which will provide a measure of the availability of satellite products to the site. For products selected, this availability will be 98.5% or better for a 30-day period starting at some point during the commissioning evaluation phase. Check with the regional AWIPS focal point for a copy of the report indicating that this site has achieved this number.	B.1.1		

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
2. The quality of the satellite images are such that office staff can use them.	A.2.1		
3. AWIPS can perform, on a pixel-by-pixel basis, basic arithmetic operations (addition, subtraction, multiplication, and division) on:			
a. a single image using a constant			
b. a pair of images	A.2.5		
4. AWIPS can enhance and smooth images using the 5-point smoothing technique.			
5. AWIPS can compute the translation velocity of an image feature from successive images and graphics by using simple time-distance-rate calculations.	A.2.4		
6. AWIPS can produce an alphanumeric display of the location, time, and speed information for the feature when utilizing the WARNGEN feature of AWIPS. AWIPS can extrapolate an image feature to future positions using the translation velocity.	A.2.4		
7. AWIPS can be used to estimate the height of a cloud top by comparing the temperature from nearby upper-air soundings, observations, and vertical sounding profiles, and gridded model data to the satellite cloud brightness temperature.			

3i **CRS/NWR**
1. Before the Console Replacement System (CRS) is interfaced into AWIPS, be sure the CRS focal point is prepared for this transition. The CRS focal point for the office will be involved in ensuring that the CRS is communicating all products it receives from AWIPS. Also, be sure that prior to interfacing CRS to AWIPS, that:
 	
   a. Documentation on performing this interface has been reviewed by the AWIPS and CRS focal points.
 	
   b. A recent alignment procedure has been conducted on the NWS transmitters/CRS to ensure optimum performance.
 	
2. The CRS, which is currently connected to AFOS/Alaska Region Operations Network (ARONET)/Pacific Region Operations Network (PRONET) for the purposes of transmitting products, transfers this interface to AWIPS. Verify AWIPS can perform a similar function with the same product suite (including products issued from RiverPro) as is currently received
	B.6.2.1	W	DA

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
from your legacy host system. AWIPS can generate these products in a format that is compatible for use by the CRS/NOAA Weather Radio (NWR). **Note:** There must not be any dependency on the legacy network for the delivery of this product suite for driving the CRS. 3. Verify proper receipt of selective use of Interactive Computer-Worded Forecast (ICWF) products, Store And Forward (SAF), Watch/Warning/Advisory (WWA), ADAPPT-AWH, Daily Climate) by CRS.			
3j **NOAA Weather Wire Service** **Note:** The SCM/APO will provide you with your provacy/backup NWWS location. 1. Verify AWIPS can communicate all critical NWWS products to the NWWS uplink at your site. Verify AWIPS can issue specific products to be transmitted over the on-site NWWS uplink. 2. If this is the uplink site, verify all NWWS-related products from other AWIPS sites that are responsible for providing products to this site are being communicated over your NWWS uplink. 3. Verify NWWS-related products (including RiverPro) issued by AWIPS are being transmitted, successfully, by the backup NWWS uplink site.	B.6.1	W, R, N	S/D, E
3k **NCEP Systems** TBD			
3l **CWSU Products** Verify through contact with the CWSU MIC that the CWSU that was receiving products from the host site's legacy system no longer requires the legacy system to transmit them. If the site was using a Remote Terminal to AFOS (RTA) to receive these products, verify the RTA is not needed by having them turn it off during the evaluation. With the RTA turned off, verify the CWSU is able to transmit its products through the AWIPS/LDAD interface or via the FAA communication network to AWIPS.		W, C	DA, M (C)
3m **Additional Connections** 1. **Fire Weather** If AFOS currently receives/exchanges data from a Fire Weather system through an		W	E

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

asynchronous connection, AWIPS can support this same connection. If the Fire Weather is implemented on a system connected to the site LAN, integration of the site LAN and AWIPS LAN would implement this connection. If the "requirement" is to dial out to a "fire weather" observation platform, interrogate it, and do something with the data, then we should talk about this one.

Verify AWIPS can ingest and store data from the Fire Weather Observation Platforms that are currently accessed by the site's AFOS. Such connections may be from AWIPS to a local PC that currently ingests Fire Weather reports or to a remote device from which AFOS currently acquires data. Verify AWIPS stores the data and that the data are made available for display at AWIPS workstations. Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s).

2. **Local Government Computer Systems (through the AWIPS firewall)**
Verify AWIPS can exchange data with external computer systems as is currently accomplished by AFOS. Denote these connections on the CRR form.

3. **SOO/SAC Workstations**
If the site currently has a SOO/SAC workstation connected to the local site LAN, verify the local LAN has been integrated with the LDAD LAN, and that the LDAD firewall has been configured to allow a secure connection between the SOO/SAC workstation and AWIPS. If the site has a SOO/SAC workstation interfaced via serial interface to AFOS (possibly through an intermediate PC running PC-AFOS or its equivalent), verify AWIPS can support this same serial connection. With AWIPS to SOO/SAC workstation connectivity established, verify the SOO/SAC workstation can exchange data and products with AWIPS. Verify AWIPS is available on-site, or at the RH (if the RH has firewall configuration/administration responsibility) to implement Internet access from AWIPS.

4. **Local LAN**
If the site currently has the local site LAN connected to the regional frame relay network (FRN), verify the local LAN has been integrated with the LDAD LAN, and the LDAD firewall has been configured to allow a secure connection between AWIPS and designated hosts on the local LAN. With connectivity established, verify AWIPS can send and receive data and products to designated hosts on the local LAN. Verify AWIPS documentation is available on-site, or at the RH (if the RH has firewall configuration/administration responsibility) to implement connectivity between the regional FRN and AWIPS.

3. Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
5. **Hydromet Workstation** a. Verify AWIPS can ingest and store data from the collocated Hydromet workstation. Verify the data are made available for display at an AWIPS workstation and that the data are sent via ACN to pre-designated sites with the proper WMO header and addressing (such as "NCF Default"). Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s).	B.1.2, B.5.1.5 B.6.2.2, B.6.2.3		
b. Verify AWIPS can dial a Handar 550A Hydrologger, establish connectivity, ingest the data, and make the data available for display at an AWIPS workstation. Verify AWIPS documentation is on-site and sufficient to configure AWIPS ports and implement the LARC connections.	B.1.2, B.5.1.5 B.6.2.2, B.6.2.3		
6. **FAA Interfaces** a. At selected offices, the FAA has a demarc box used for receiving legacy system products for transmission directly to their facilities. If such a box exists or there is some other means for transferring these products to the FAA within the site, ensure that a new connection to AWIPS LDAD has been made and verify AWIPS-originated products are being issued correctly. The local office should contact the FAA for verifying that this connection is operating correctly. b. FAA Demarc Connection: Verify AWIPS can exchange data with the FAA's Ingest Display System, such as Systems Atlanta Information Display System (SAIDS) which is currently connected to the site's AFOS. Verify AWIPS can support this interface in the same manner in which it is supported by AFOS.	B.6.3.4		
3n <u>**LDAD Dissemination**</u> 1. **LETS/SETS** Verify current AFOS connectivity to law enforcement and emergency organizations can be successfully supported by AWIPS. Verify this connection allows the exchange of data as currently accomplished through AFOS. Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s). 2. **Emergency Managers** Verify AWIPS allows a user to compose a document and send it via fax to an emergency manager. Verify the AWIPS bulletin board service is accessible by emergency managers.	B.5.3.3		

3.	Satisfactory Performance of System Functions and Interfaces	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
	Verify AWIPS documentation is on-site to configure AWIPS ports and implement the connection(s). 3. **Bulletin Board** Verify AWIPS provides a menu selection capability for authorized external users to request AWIPS products. Verify an authorized external menu user can access designated AWIPS data.			
3o	**Local Single/Multifunction PCs** 1. Verify AWIPS can receive and store products produced by the PCs as currently received and stored by AFOS.	B.6.3.1		
	2. Verify all products produced by the local PCs can be automatically addressed and transmitted over the WAN.	B.6.3.1		
	3. Verify AWIPS can send all products needed by the local PCs.	B.6.3.1		
3p	**AFOS Switched to Receive-Only** After applicable criteria under 3 have been completed, switch the AFOS to AWIPS asynchronous link to receive-only and any links to the local LAN.			

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.			
4a **General Requirements** 1. The WFO has restructured its area of responsibility so that all zone forecast and marine products have been transitioned over from offices shedding these products. A Public Information Statement has been issued detailing the change in forecast products. 2. The office has Stage II staffing in place to support operations.		W	W, M

4b **Technical Coordination**
Technical coordination with external users is/was completed and documented in accordance with requirements of Section 3.3 of the <u>Internal and External Communication Plan for the Modernization and Associated Restructuring of the NWS</u> (prepared by the WSH). Technical coordination is complete when:
   a. All identified users have received the technical coordination packages (as specified in Section 3.3.7.3 of the *Internal and External Communication Plan*).
 	
   b. The local manager or designee contacts users to ensure that the impact of commissioning of the new technology is understood. This includes an understanding of the changes in product header information that could impact their operations and changes in the dissemination process as a result of LDAD. This contact is accomplished by conducting a user conference. If the mailing approach is used, a telephone call or personal visit is required.
 	
Note: Mailings alone do not constitute technical coordination.
 	
   c. The above actions have been documented according to RH policy.
		W	W, M

4c **Map Projections/Backgrounds** 1. Site can create Arcview shape files for areas to be displayed as AWIPS maps for use at local office. 2. Site can modify existing points, lines, and areas on existing baseline delivered maps. Site can create a new map and points using local software tools. Site can retrieve a shape file, text file, and binary cartographic file, and modify them locally to a Build 4.2 format.	A.2.2.1 A.2.2 A.2.2	W, R	S/D, F/HY, W

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
3. AWIPS must have accurate/correct map backgrounds with respect to: a. Registration of images with associated maps for Center Weather Advisory (CWA), county highways, marine areas, AI:(make list & coordinates) lat-long grid. **Note:** All D2D shapefile input data used for map backgrounds are maintained in lat/long coordinates so they are projection independent. b. Misspelled names, misplaced cities, and inaccurate names where more than one similar location exists. Structure of some files in baseline at PRC allows for only one version of a point label. So, what may be interpreted as a misspelled name for one site may be the abbreviation used by another site. **Note:** The accuracy of a point is limited to the resolution of the data set, e.g., U.S. Census (1:2 million) data should be accurate to within a mile about 90 percent of the time. That still leaves larger errors 10 % of the time.	A.2.2		

4. Verify these models can be projected over the listed grid domains (as defined below):
 	
a. 201 Hemispheric - polar stereographic
 	
b. 202 National - Continental United States (CONUS) - polar stereographic
 	
c. 211 Regional - CONUS - double resolution with respect to 211 - Lambert Conformal
 	
d. 212 Regional - CONUS - double resolution with respect to 211 - Lambert Conformal
 	
e. 213 Regional - CONUS - double resolution with respect to 202 - polar stereographic
 	
f. 215 National - CONUS - quadruple resolution - Lambert Conformal
 	
g. 214 polar stereographic 160
 	
h. 216
 	
   i. Aviation (AVN) Forecast Model: 201, 202, 211, 213, 214, 216, HI, Guam, Puerto Rico
 	
   ii. ETA Forecast Model (ETA): 211
 	
   iii. Mesoscale forecast Model (MESO-ETA): 212, 215
 	
   iv. Medium Range Forecast (MRF) model: 202, 211, 213, 214, 216, HI, Guam, Puerto Rico
	A.2.1		

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
v. Nested Grid Model (NGM): 202, 211, 213			
vi. Rapid Update Cycle (RUC): 211			

4d **Grids/Plots/Graphics/Images**
1. Validate AWIPS can:
 	
   a. Generate station model plots.
 	
   b. Generate contoured graphic products of gridded data.
 	
   c. Create a composite graphic.
 	
   d. Obtain readouts from the cursor position of the latitude/longitude, temperature, wind speeds, RH, reflectivity.
 	
   e. Generate two-dimensional streamline displays from gridded vector component fields.
 	
   f. Create time series displays of hydrometeorological data as:
 	
     i. gridded data (*AWIPS User Guide*, Section 2.2.2)
 	
     ii. observation meteogram (Pacific Region)
 	
     iii. single station, single or multiple parameter plots
 	
   g. Produce time-section (time-height) plots of hydrometeorological data based on a site-specified location and time range grids only (*AWIPS User Guide*).
 	
   h. Produce cross-section (space-height) plots of hydrometeorological data based on site-specified locations and time.
 	
   i. Display trajectory forecasts from centrally produced model guidance (RedBook graphics) using forward and backward trajectory computations.
 	
2. AWIPS can generate a combined 8-bit image from two 4-bit components by all of the following methods:
 	
   a. Combining two 4-bit images.
	
	A.2.1
	
	A.2.1
	
	A.2.1
	
	A.2.1
	
	A.2.4
	
	A.2.4
	
	A.2.1
	
	A.2.1
	
	A.2.5
	
	A.2.3
		W, R	S/D, F/HY

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
b. Extracting 4 bits from two 8-bit images and combining them.			
c. Extracting 4 bits from one 8-bit image and combining them with a 4-bit image.			
3. AWIPS can perform density slicing functions to highlight features by defining the range of values and assignment of colors.	A.2.3		
4. AWIPS can:	A.2.3		
a. Enhance images using a single color for two end-points and using gradation across a range.			
b. Smooth and enhance images (5-point smoothing technique).			
5. AWIPS can compute the translation velocity of an image feature from successive images and graphics by using simple time-distance-rate calculations. AWIPS can extrapolate an image feature to future positions using the translation velocity (5-point smoothing technique).			
6. AWIPS can produce a graphical display of radar storm track and an alphanumeric display of the location, time, and speed information for the feature (5-point smoothing technique).	A.2.4		
7. Verify, through contact with forecasters on shift, that Lightning Detection System (LDS) data are being displayed on AWIPS and are available for use in the preparation of warnings/forecasts.	A.2.1		
4e **Display/Analysis of Data and Products** 1. AWIPS can display legends with data products and can display the previous and next versions of displayed products stored locally.	A.2.6 A.2.1	W, R	S/D, F/HY
2. AWIPS can retrieve and display the following models as received from the SBN:	A.2.1		
a. AVN forecast model			
b. ETA Forecast Model (ETA)			
c. Mesoscale Forecast Model (MESO-ETA)			
d. MRF model			
e. NGM			
f. RUC			

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
g. Other AFOS models: UKMET/European Centre for Medium range Weather Forecasting (ECMWF) (RedBook graphics).			
3. Forecast/hydrologic staff are able to retrieve model data for display and analysis.	A.2.1, B.1.2		
4. AWIPS can display the following WSR-88D radar data on appropriate AWIPS map backgrounds:			
a. Image products			
b. Geographic-based overlays			
c. Non-geographic-based overlays			
d. Alphanumeric products			
e. Cross-section products.			
5. AWIPS allows for the site to establish local default map backgrounds, overlays, and color tables for each radar product.			
6. AWIPS can generate combined reflectivity/velocity products from WSR-88D data.			
7. AWIPS can create a Local Area mosaic of 4-km data from multiple WSR-88D systems, using the Maximum value method (Build 4.0) mosaic algorithm.			
8. AWIPS can generate a digital image from gridded data sets, using the grid-point replication method.	A.2.3		
9. AWIPS can produce time series plots of tide/water level height predictions, observed heights, and their departures from the predicted values using the WHFS and Hydrobase, if products are received in a SHEF-encoded format and the locations for the data have been defined in the WHFS data base.	B.5.11		
10. The following mostly applies to Alaska and Pacific Regional sites:			
a. AWIPS can produce plots of directional wave energy spectra data (energy and direction) on a polar coordinate background.			
b. AWIPS can produce plots of non-directional wave energy spectra data on a polar coordinate background.			

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
11. AWIPS can produce tabular displays of: a. Predicted tide/water level heights and observed maximum and minimum tide/water level heights and times of occurrence.	B.5.11		
b. Non-directional spectral wave data for user-selected periods, stations, and observational times. **Note:** Hydroview can produce these with data in the hydrodata base.	B.5.11		

12. AWIPS can produce skew-T/log-P graphic plots that include the pressure level of the:
 	
  a. Lifting condensation level
 	
  b. Convective condensation level
 	
  c. Convective temperature
 	
  d. Level of free convection
 	
  e. Equilibrium level.
	A.2.1		

13. AWIPS can compute single-site sounding parameters derived from the input sounding data. (This parameter list can be found in the *AWIPS User Guide*.)	A.2.1		
14. AWIPS can produce a hodograph graphic product.	A.2.1		
15. AWIPS can produce parameters derived from hodograph analysis. (This parameter list can be found in the *AWIPS User Guide*.)	A.2.1		
16. AWIPS can interactively modify the temperature and dew-point values on a skew-T/log-P diagram and winds on a hodograph, with all parameters recomputed based on the modifications.	A.2.1		
17. AWIPS can estimate automatically the height of a cloud top, manually, by comparing the temperature from nearby upper-air soundings, observations, and vertical sounding profiles, and gridded model data to the satellite cloud brightness temperature using general AWIPS capabilities.	A.2.1		
18. AWIPS can use interactive, graphical methods to specify watch, warning, advisory, and statement issuance information. **Note:** Warngen and select use of ICWF applicable here.	A.3.3		

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
19. AWIPS can generate combined reflectivity/velocity products from WSR-88D data. 20. AWIPS can create a local area mosaic of 4-km data from multiple WSR-88D systems using the maximum value method.			
4f **User-Defined Procedures** 1. AWIPS can run user-defined procedures and step through user-defined procedures one step at a time. Verify screen-states whereby a screen in use by the forecast staff can be saved and retrieved as a defined procedure. Verify the output from the procedure when executed provides correct results to the forecast staff. **Note:** Each procedure works on the active screen only. The user cannot load each panel with one procedure. 2. AWIPS can create and run user-defined radar dial procedures.	A.2.1	W, R	S/D, F/HY

4g **Parameters/Indices/Operations/Calculations**
Note: The Product Maker capability within AWIPS encompasses many of the features listed below. Therefore, the EO needs to validate this component of AWIPS separately from the specific parameters, indices, operations, and calculations listed below that may be utilized in other ways.
 	
1. AWIPS can compute:
 	
   a. Surface parameters.
 	
   b. Upper-air parameters.
 	
   c. Thermodynamic parameters and indices.
 	
   d. Isentropic surface parameters.
 	
2. AWIPS can perform the above computations for grids only:
 	
   a. Single points in space/calculation.
 	
   b. Evenly distributed points
 	
3. AWIPS can perform the following arithmetic, logical, and statistical operations:
		W, R	S/D, F/HY

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

a. First and second derivatives in the x- and y-directions.
 	
    b. Laplacian and Cross Derivatives.
 	
    c. Smoothing a grid with 5-point two-dimensional filters.
 	
    d. Addition, subtraction, multiplication, and division.
 	
    e. Logarithmic, exponential, trigonometric, and inverse trigonometric operations.
 	
    f. Logical and relational operations.
 	
4. AWIPS can perform, on a pixel-by-pixel basis, basic arithmetic operations (addition, subtraction, multiplication, and division) on:
 	
    a. A single image using a constant.
 	
    b. A pair of images.			

4h   **WFO Objective Analysis Techniques/Models/LAMP**
1. AWIPS can execute the Local Analysis and Prediction Model (LAPS) "analysis part" only.
 	
2. AWIPS can perform optimum interpolation under LAPS.
 	
3. AWIPS can execute the Local AWIPS Model Output Statistics (MOS) Program (LAMP) to generate station-specific statistical guidance forecasts from the solution of multi-variate linear regression equations. LAMP includes the following models:
 	
    a. Reed Sea Level Pressure (SLP) advective model to compute hourly forecasts of 1,000 millibar heights.
 	
    b. Sanders, LaRue, Younkin, and Hovermale (SLYH) moisture advective model to compute 1-hour, 6-hour, and 12-hour 1000-500 millibar accumulated saturation deficit gridfields.
 	
    c. Cloud Advection Model (CLAM) to generate forecasts of opaque cloud amount, ceiling height, visibility, and liquid, freezing, and frozen precipitation gridfields.
 	
4. AWIPS can generate displays of storm-surge height and flooded land area from the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model.
		W, N	S/D, F/HY

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

4i **Hydrologic Models**
1. AWIPS can execute the following hydrologic models on AWIPS:
 	
    a. Area-wide Hydrological Prediction System (AHPS) model.
 	
    b. Site-specific Hydrological Prediction System (SHPS) model, possibly interfaced via the async scheduler function.
 	
    c. Simplified Dam Break Channel Flow model, possibly on a PC interfaced into AWIPS.
 	
    d. NWS River Forecasting System (NWSRFS), including:
 	
        i. Model calibration.
 	
        ii. Operational forecast system for short-range forecasts.
 	
        iii. Extended Streamflow Prediction (ESP) for probabilistic forecasts in support of real-time hydrological forecasting.
 	
2. AWIPS can perform historical data analyses using:
 	
    a. Mean Areal Precipitation (MAP)
 	
    b. Mean Areal Temperature (MAT)
 	
    c. Mean Areal Potential Evapotranspiration (MAPE) procedures.
 	
3. AWIPS can execute Flash Flood Guidance (FFG) to compute the precipitation necessary to initiate flash flooding.
 	
4. AWIPS can execute the SLOSH model for computation of strike probabilities and storm surge.
 	
5. AWIPS can generate displays of storm-surge height and flooded land area from the SLOSH model.
	B.1.2	W, R	F/HY

4j **Hydrologic Service Area (HSA) Display/Analysis/Product Preparation** **Note:** The following are currently performed by HASQPF or their Mapper PC applications. 1. AWIPS can produce a mosaic of WFO-produced gridded Quantitative Precipitation Forecasts (QPF) displayed as: a. Contours of each WFO QPF grid overlaid.	B.1.2	R	F/HY

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
b. Image representations of the mosaicked QPF grid.			
2. AWIPS can edit mosaicked QPFs displayed as contours, by graphically modifying the contours, and can manipulate the QPF data displayed as contours for one specific WFO by:			
a. Editing individual WFO QPF contours.			
b. Replacing WFO QPF data with QPF values from another source.			
3. AWIPS can produce displays of forecast-versus-observed precipitation data.			
4. AWIPS can compute Mean Areal Precipitation (MAP) values by averaging grid values for all gridpoints within a user-specified MAP basin and produce geographic displays of these MAP basin values.			
5. AWIPS can distribute multi-hour (e.g., 24-h) gridded QPF field into smaller (e.g., 6-h) time periods.			
6. AWIPS can edit the smaller time-period amounts of a gridded QPF field.			
7. Demonstrate that radar data can be overlaid with all other hydrometeorological data sets.			
The following items pertain to the Stage III Processing:			
8. AWIPS can create hourly multi-sensor and gauge-only precipitation grids using gridded WSR-88D radar precipitation estimates, point (rain gauge) precipitation observations.			

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
9. AWIPS can mosaic multi-sensor and gauge-only precipitation grids for all WSR-88D sites covering the RFC's area of responsibility.			
10. AWIPS can produce a mosaicked precipitation image from the multi-sensor and gauge-only gridded precipitation data.			
11. AWIPS can produce a tabular display of the hourly precipitation accumulations from gauge sites.			
12. AWIPS can edit the tabular gauge value data and the multi-sensor precipitation grids.			
13. AWIPS can select either the multi-sensor or the gauge-only grids.			
14. AWIPS can produce 6-h and 24-h precipitation accumulation mosaics.			
15. AWIPS can merge the multiple (6 or 24) hour mosaic with the multiple-hour gauge-only analysis to produce a final precipitation accumulation.			
16. AWIPS can time-distribute the final precipitation accumulation over the hourly mosaics.			
17. WFOs must be able to generate and transmit gridded and SHEF-encoded QPF to RFCs and other WFOs.			
4k **Public Product Preparation** 1. AWIPS can generate:		W, R	S/D, F/HY
a. Hazardous weather products (includes segmented hazardous wx products).	A.3.3		
b. Can support the generation of marine warnings using marine breakpoints. (Product may need to be generated on the PC with the use of the AWIPS sync scheduler.)	A.3.3		
c. The Coded Cities Forecast.			
d. Terminal Aviation Forecasts (TAF)/Transcribed Weather Enroute Broadcasts (TWEB) by extracting the data from a user-prepared workfile, which may reside in a PC interfaced into AWIPS.	A.3.2		
e. All routine products that the office currently provides over the AFOS/ARONET/PRONET communication networks.	A.3.1		
2. AWIPS can automatically insert a WMO header and mass media header into the beginning of all	A.3.1		

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
products indicating that they were issued for the forecast area and period.			
3. A designated user at the site can modify the format of a given hazardous weather product type.	A.3.3		
4. AWIPS can transmit all predesignated products to the AFOS network and the NWWS using the product inventory list (PIL) format.	A.3.1, B.2.1 B.6.4, B.6.1		
5. AWIPS provides a "preformat capability" to aid in the generation of text products (ICWF, Warngen).	A.2.1		
6. AWIPS can manipulate displayed text in a text window in the following ways: a. Change character size. b. Move and copy text from one window to another. c. Page and scroll through text. d. Move to beginning or end of text. e. Append text.	A.2.1		
7. The site can edit displayed text in a text window on any monitor.	A.3.1		
8. AWIPS can recover automatically backed-up text at any workstation.	A.3.1		
9. AWIPS can display any hazardous weather products.	A.2.1		
10. AWIPS can display any available products stored in the local data base.	A.2.1		

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

11. AWIPS can **automatically** generate the following products from observational and climatological data stored locally:
 	
   a. Marine Observation Roundup.
 	
   b. Hourly Weather Roundups.
 	
   c. Daily Climatological Report (CLI).
 	
   d. Monthly Climatological Report (CLM), may be PC interfaced via async scheduler.
	A.3.2		

12. AWIPS can automatically generate the following hydrometeorological text products:
 	
   a. River Statement.
 	
   b. Flood Statement.
 	
   c. Flood Warning.
	A.3.4 B.2.1.1		

13. AWIPS can automatically select any of the three types of products listed above to generate on the basis of flood category information.	A.3.4 B.2.1.1		
14. AWIPS can automatically generate a River and Rainfall Summary Product and transmit over the ACN via AWIPS as is currently performed via WXR.	A.3.4 B.2.1.1		
15. A designated user at the site can modify the specific format of a routine forecast.	A.3.4 B.2.1.1		
16. AWIPS can generate RiverPro.hydrologic products, as is currently performed via WXR, needed by the WFO as defined in Operations Manual Letter (OML) E-42, such as Flood Potential Outlook (FJF) River Summary (RVA), Water Supply Outlook (EJS), River Ice Product (RVI), River Recreation Statement (RVR), and GOES Porta Request (RR9). WXR may need to be interfaced into AWIPS using the AWIPS scheduler capability.	A.3.4 B.2.1.1		
17. AWIPS will support the generation of segmented hazardous weather products (e.g., in same product multiple warnings for different areas, times, etc.).			

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
18. AWIPS will support the following operationally required non-AWIPS/non-AFOS applications: [local site specified] ÷ from query to field 19. AWIPS will support the following operationally required non-AWIPS/AFOS applications: [local site specified] ÷ from query to field 20. Verify WMO headers are correct for your WFO and associated backup responsibilities.	 B.2.1		
4l **Forecast Verification** AWIPS can assemble local forecasts, guidance, and corresponding observational data for local and national verification to replace AFOS verification.		W	S/D, F/HY
4m **Data Quality Control Checks** 1. AWIPS enables the operational staff to perform quality control checks on data acquired at the site. AWIPS provides no less than the current capability for the site to do the following: a. Display locally acquired data. b. Detect suspect data. c. Resolve errors. d. Transmit corrections or take other appropriate actions. 2. At a minimum, AWIPS provides the following locally acquired data quality control functionality: a. Internal consistency check. b. Checks for missing elements and formatting errors. c. Spatial consistency checks (any pair of observations). d. Temporal check.	A.2.8 A.2.8	W	

4. Satisfactory Support of Associated NWS Forecast and Warning Services	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
3. Verify MAPS surface assimilation system (MSAS) performs an hourly 60-km, CONUS-wide analysis, based on reports from METARs, fixed buoys, and the NOAA Profiler Network, as well as any local MESONETs ingested through the LDAD system. MSAS also supplies quality control information to the Quality Control and Monitoring System (QCMS). The analysis grids are available on the Surface menu and in the Volume Browser. Verify hourly surface observations of sea-level pressure, temperature, winds, and humidity are processed correctly. The QC checks include: a. Validity check, which compares observations to specified tolerances. b. Spatial consistency check, which compares observations to values estimated from neighboring data using MSAS. c. Temporal check, which compares observations through time. d. Internal consistency checks, which compare observations measured at the time for a particular station. **Note**: Element of QC: temperature, dew-point temp, sea level pressure, u&v wind components, station pressure, relative humidity, 3-hour pressure change, visibility, accumulated precipitation and altimeter setting.	A.2.8		

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.			
5a **Workstation Failure Backup Procedure** 1. AWIPS can operate successfully with one workstation inoperative without impairing operations (Level 1 backup). If AWIPS has operated satisfactorily with one or more non-operational workstations during the commissioning evaluation phase, the procedure below will not have to be performed and the element will be deemed satisfactory. 2. The site will verify at least one workstation can be non-operational without adversely impacting the sites. The site will notify the NCF via another AWIPS workstation that a workstation backup test will be performed. The test procedures will be those as described in the OT&E Plan.	A.4.1	W, R	S/D, F/HY
5b **AS/CP/DS Failure Backup Procedure** 1. AWIPS can switch from its primary device [Application Server (AS), Communication Processor (CP) and the Data Server (DS)] to its backup system without impairing operations (Level 1 backup). If AWIPS site has performed a switch from a primary device to a backup unit during the commissioning evaluation phase successfully, the procedure below will not have to be performed and the element will be deemed satisfactory. 2. For each device listed above, the site will verify that AWIPS can be transferred to their respective backup devices. The site will notify the NCF via the AWIPS workstation that a CP/DS backup test will be performed. The test procedures will be those as described in the OT&E Plan. Verify all pre-defined capabilities are active when AS/CP/DS is in backup mode.	A.4.2	W, R	S/D, E
5c **Primary Radar Failure Backup Procedure** 1. The site can switch from its primary radar to its backup radar(s) without impairing operations (Level 2 backup). If AWIPS site has performed a switch from its primary radar to its backup during the commissioning evaluation phase successfully, the procedure below will not have to be performed and the element will be deemed satisfactory. 2. The site will verify the primary radar can be transferred to its respective backup sites. The site will notify the NCF via the AWIPS workstation that a primary radar backup test will be performed. The test procedures will be those as described in the OT&E Plan.	A.4.3	W, R	S/D, F/HY

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

5d **LDAD Failure Backup Procedure**
 	
1. **General Backup**
There is the potential for successful data transfer to the LDAD server, even though the path to the AWIPS data base is broken, such as could be the case if the firewall or LAN connection has failed. In such a case, the external device would perceive a successful connection/transfer and not employ an inherent backup provision. In such a situation, a number of options may be available to ensure the integrity of the data transfer to AWIPS. One option may be to disable the particular modem or line associated with such an external system, when the local internal path is known to be down. Another option could be to employ a manual transfer from the LDAD server to AWIPS internals, and another could be to access the failed site's LDAD server from a remote site.
 	
2. **ASOS**
 	
   a. Verify AWIPS can receive and process ASOS-produced observations (METARs, SPECIs, SHEFs, and Daily/Monthly messages) from its backup AWIPS. This is to validate the backup function of the ASOS when the primary host site is unavailable to receive the products.
 	
   b. Verify AWIPS can receive and process all products (METARs, SPECIs, SHEFs, and Daily/Monthly messages) from ASOSs that this site is supposed to back up.
 	
3. **ROSA**
Currently, if PC-ROSA or AFOS is down, the incoming call is not answered. The cooperative observer knows to call a pre-designated alternate site. Verify that AWIPS provides this same functionality.
 	
Note: PC-ROSA currently requests keep-alive messages from its AFOS port in order to maintain awareness of the connection.
 	
4. **MESONET**
If the local MESONET PC is up, but failed AWIPS components preclude this electronic data transfer, a number of options exist. One is to display the data on the MESONET PC and manually enter it at an AWIPS workstation as is currently done at a number of AFOS sites. Another is to put the MESONET data on media. For example, if the local firewall, local server (LS), LDAD LAN, or terminal trans server (TS) has failed, a remote site may access the failed site's local LAN to access the MESONET PC.
 	
5. **LETS/SETS**
Specific backup implementations depend on the specifics of the connection and the specific
	B.5.10
	
	B.5.1.1
		W	DA, HM

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
AWIPS failure. For example, if the connection is through a dial telephone line, the law enforcement organization could call an alternate AWIPS site. Depending on the specific failure, communication devices on the unsecured side of the AWIPS firewall may be directly accessible by remote AWIPS sites. Manual provisions or a human-to-human interface via telephone, may also be an acceptable backup.			
6. **Internet** None. The AWIPS program has decided to preclude Internet traffic on the AWIPS WAN in Build 4.2 due to its potential volume and contention with operational traffic. Therefore, backup Internet access can only be implemented external to AWIPS (such as via another device on the site LAN or via the regional FRN).			
7. **ALERT/IFLOWS** If AWIPS is to distribute data from an ALERT/IFLOWS PC in the event of a local AWIPS failure, external means, such as the regional FRN, may be an acceptable backup to provide these data to an alternate AWIPS site. Depending on the local failure, alternate means of accessing the site's LDAD LAN from a remote AWIPS site may be employed. Specific to IFLOWS, which has its own backbone regional FRN, a specific backup site, which also has an IFLOWS PC, may be pre-designated to implement the local IFLOWS-AWIPS connection when the subject site has lost the capability to support this connection.			
8. **Spotters**If the local PC is up, but failed AWIPS components preclude this electronic data transfer, a number of options exist. One is to display the data on the PC and manually enter it at an AWIPS workstation. Another is to put the MESONET data on media. The current backup provisions for Spotter reports should reviewed for applicability.			
9. **Hydromet Workstations**If AWIPS is to distribute data from a hydromet workstation in the event of a local AWIPS failure, external means (such as the regional FRN) may be an acceptable backup to provide this data to an alternate AWIPS site. Depending on the local failure, alternate means of accessing the site's LDAD LAN from a remote AWIPS site may be employed.			
10. **Fire Weather**If the local Fire Weather PC is up, but failed AWIPS components preclude this electronic data transfer, a number of options exist. One is to display the data on the Fire Weather PC and manually enter it at an AWIPS workstation as is currently done at a number of AFOS sites. Another is to put the data on media. Depending on which particular AWIPS component has failed, a number of other backup schemes exist. For example, if the local firewall, LS, LDAD LAN, or TS has failed, a remote site may access the failed site's local LAN to access the PC.			

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
11. **LARCs/ARCs/AMOS/RAMOS**LARCs revert to voice mode if the interrogating station does not provide a modem tone. If a site needs immediate real-time data from a LARC and necessary AWIPS components have failed, a user can manually call a LARC and audibly receive the data. If necessary, the data can be entered at an AWIPS keyboard.			
5e	**WAN Failure Backup Procedure** 1. The site can switch to the 56-kbps dial backup line in a request/reply mode to retrieve critical AWIPS products. This is to back up AWIPS when the local SBN is inoperative for an extended period of time (Level 3 backup). AWIPS only validates that the 56-kbps line can retrieve critical products without adversely impacting the critical operations. If AWIPS has performed a switch from its local SBN downlink to the 56-kbps dial line during the commissioning evaluation phase successfully, then the following procedure will not have to be performed and the element will be deemed satisfactory. 2. The site will verify the 56-kbps dial line can deliver critical AWIPS products to the site. The site will notify the NCF via the AWIPS workstation that a test of the dial line will be performed. The test procedures will be those as described in the OT&E Plan.	B.2.2.7 B.2.2.7	W	S/D, E
5f	**WFO Service Backup Procedure** 1. When AWIPS is declared to be in backup mode, i.e., AWIPS is now taking over a portion or all of another office's service responsibility (Level 4), verify AWIPS can be reconfigured to perform the backup function for each site your site is responsible for backing up. This is performed by reconfiguring one or more workstations with the necessary localization parameters, so that it now functions as the other location. Verify all the necessary WMO header information for the sites that will be backed by your site AWIPS has been entered correctly into the data base. 2. When commencing the service backup procedure, send messages indicating service backup will now be occurring to: a. The NCF. [WFO] b. The site's neighboring WFOs. [WFO] c. Notification of external users in the impaired area via a public information statement (PNS).		W	S/D, W

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

5g **WFO Service Backup Procedure No.1**
Prerequisite activity - AWIPS must be able to reconfigure one or more workstations at another site using localization parameters. AWIPS can acquire data using dial-up. AWIPS must be able to save data for the site you are providing data for.
1. Before other sites can back up your site AWIPS, which is deemed completely inoperable, they must have received from your site the following:
    a. Localization parameters to reconfigure one or more workstations to be your location.
    b. Necessary information on product headers so that operational staff can issue routine and critical products over the ACN and to local users.
2. When your site AWIPS is declared to be in backup mode, the AWIPS performing the backup at another location or locations can:
    a. Acquire data (via dial-up connections) from the impaired WFO's local data sources that permit dial-up access. LDAD [WFO]
    b. Access the data acquisition, data exchange, and data dissemination networks of the impaired RFC. [RFC]
3. When the site [WFO] is notified that an RFC backup is occurring, AWIPS can redirect the data it normally sends to its assigned RFC to the backup.
		W	S/D, DA

5h **WFO Service Backup Procedure No. 2**
When performing a backup, AWIPS [WFO] can:
    a. Process and display local data acquired from the impaired WFO's sources on map backgrounds appropriate areas for backup function on the **impaired** WFO (in addition to displaying its own data).
    b. Generate watches, warnings, advisories, and forecasts other hydrometeorological products for the impaired WFO using formats and headers of the impaired WFO (in addition to generating site WFO products).
    c. Disseminate watches, warnings, advisories, and forecasts other hydrometeorological products to the impaired WFO's external users (in addition to its own product dissemination).
		W	S/D, W, DA

5. Proper Functioning of System and Service Backups	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
5k **River Forecast Center Computational Backup** 1. Does not have to return to service in short-term period. 2. HSA is 1st line backup. 3. Alternate computation and operational facility–transplant the facility. 4. Current view–build single site at WSH and translate 24-48 hrs–same staff. 5. Backup plan needed.		R	S/D

6. Adequate Documentation for Operations and Maintenance	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied, adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.		
6a **System Documentation** The site must have in its possession copies of the system-related documentation as listed in Appendix x to this Addendum.	W, R, N	
6b **Applicable WSOM Chapters** The site must have in its possession copies of the applicable WSOM chapters as listed in Appendix I-C.	W, R, N	
6c **Station Duty Manual** The site must have the updated station duty manuals for <u>all</u> program areas (e.g., aviation, marine, public, etc.) impacted by the commissioning of AWIPS.	W, R, N	
6d **Security Policy** The site must have in its possession a copy of the NWS AWIPS Security Policy, dated ??	W, R, N	

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions that require a work-around or commissioning note must be denoted in the Remarks section of the Commissioning Report.			
7a **Localization of Site-Specific Data** 1. Verify the necessary site-specific data have been incorporated into the AWIPS data bases and meet site operational requirements including: Dial radars, site ID's, passwords for radars, text data base tailoring, scale sizing, and map backgrounds. 2. Verify SHIMS data base has been forwarded to Office of Hydrology for incorporation into the hydrobase. 3. Verify configuration parameters for other sites being backed up by this location have been incorporated to perform the service backup function. Site location and unique operational requirements are retained with system and software upgrades. Site has the ability to preserve site-specific data and unique operational configurations with system and software upgrades. 4. Documentation to support site customization and localization of site-specific data is available and training is sufficient to perform the site localization.	A.9.1	W, R, N	S/D
7b **System Security** The site's electronic and operational staff have read the AWIPS security policy, dated _____, and are familiar with appropriate security measures to ensure that breaches into AWIPS are avoided.	A.4.5	W, R, N	S/D, F/HY, DA, E
7c **Firewall Security** The site's electronic staff has reviewed the connections from LDAD to the firewall to verify all connections are secured. If a connection is not made through the firewall (e.g., the async scheduler ports), document it in remarks with an explanation as to why it doesn't need to be interfaced to the firewall.	B.5.9	W, R, N	S/D, E

7d **Displays/Panels/Windows**
1. AWIPS can perform the following functions:
 	
   a. Display up to at least four data windows on each workstation and monitor, display text in at least four data windows/panes on <u>any</u> monitor, and display text in text windows.
 	
   b. Display an image in a data window on an image/graphics monitor and overlay other graphics
	
	A.2.1
	
	A.2.1
		W, R, N	S/D, F/HY

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
on top of the image.	A.2.1		
c. Clear a single or all data overlays from the main pane.	A.2.1		
d. Display the current date and time of day on each monitor (in local and UTC).			
e. Save the state of the information displayed on a monitor (called a screen state) including size, position, and content of the main display and recall it.			
2. Verify AWIPS can automatically monitor observations, forecasts, and guidance data and notify the site when detected events meet specified alert criteria/thresholds (alerts) (TAF monitor).	A.7		
3. At a minimum, the following functionality should be available:	A.7		
a. TAF monitor.			
b. Wind chill thresholds (AR).			
c. Notification of METAR parameters based on discrete thresholds and changes over time (AR/PR).			
4. Verify AWIPS executes the following functions when required:	A.7		
a. Late product monitoring for graphics, grids, images, and text (see *AWIPS Users Guide*).			
b. Running of applications upon receipt of text products or chronological jobs.			
c. Universal Geographic Code alerting proximity of Warning/Watches/Advisories.			
5. Verify the site can configure operational alerts and notifications and they are functioning properly for their site.	A.7		
7e **Graphics/Images/Animation** 1. AWIPS can toggle displayed image and graphics products. AWIPS can fade a combined image. AWIPS can toggle between the components of a combined image.	A.2.1	W, R, N	S/D, F/HY
2. AWIPS can display image and graphics in any of the following projections:	A.2.1		
a. Constant Latitude and Longitude Outside Continental United States (OCONUS).			
b. Polar Stereographic (OCONUS).			

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
c. Equatorial Mercator (selected scales) (OCONUS).			
d. Polar Orbiting Satellite Projection (OCONUS).			
e. Lambert Conformal.			
f. Local Stereographic.			
3. AWIPS can perform the following functions:	A.2.1		
a. Change the line type and line width of a displayed graphics product.			
b. Change the animation rate of a loop from 1 to at least 10 frames per second.			
c. Change the direction of an animation loop to forward, reverse, and alternating.			
d. Pause and restart an animation loop.			
e. Specify a dwell time for the beginning or end of an animation loop.			
f. Step frame-by-frame through an animation loop.			
g. Skip (not display) a frame of an animation loop.			
h. Simultaneously animate data in at least one window on each image/graphics monitor.			
i. Animate up to 32 frames of data in each loop, where each frame can contain any image and graphics products that can be statically displayed (main pane only).			
j. Save and recall animation loops using procedures.			
7f **Text/Graphics/Image Colors/Cursor** 1. AWIPS can perform the following functions:		W, R, N	S/D, F/HY
a. Display images with at least 256 colors on an image/graphics monitor.	A.2.1		
b. Associate color enhancements with images such that when the image is displayed, its associated color enhancement is automatically applied.	A.2.1		
c. Display graphics with at least 12 colors on an image/graphics monitor.	A.2.1		

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
d. Change the color of a displayed text data product.	A.2.1		
e. Select the site default set of colors to be used to display image, graphics, and text products.			
f. Display image and graphics products with color independence in at least four data windows on each image/graphics monitor.	A.2.3		
g. Display image and graphics products with color linkage in at least four groups of data windows on each image/graphics monitor.	A.2.3		
2. Verify AWIPS can display hydrometeorological, cartographic, and site management data (as listed in *WHFS User's Guide*) at the geographic position represented by the active cursor.	A.2.1		

7g **Decoders for Data Acquisition and Processing**
  1.   Verify that the following function correctly (i.e., products that need decoding are being decoded and used with AWIPS applications) within your AWIPS:
 	
    a.   METAR, for surface aviation reports using the METAR format.
 	
    b.   Upper-Air, for radiosonde reports (TTAA/TTBB/TTCC).
 	
    c.   Gridded Binary format (GRIB, for gridded products such as model data (RUC, ETA, etc.).
 	
    d.   Binary Universal Format for data records (BUFR, for products transmitted using the BUFR format (Profiler, upper-air).
 	
    e.   SHEF, for products received from ROSA, data collection platforms (LARCs/ARCs).
 	
    f.   HDA/DPA, for radar precipitation products issued over the ACN.
 	
    g.   RedBook graphics, for residual AFOS graphics.
 	
    h.   SHIP, for ship reports.
 	
    i.   Drifting Buoy, for National Data Buoy Center (NDBC) drifting buoy reports.
 	
  2.   These will be evaluated through normal operations and through contact with operational staff. Evaluate only those that pertain to your operation.
		W,R,N	DA

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
7h **Printers** Verify all printers delivered with AWIPS are functional and can produce images and office-generated products clearly. Use EHB - 13 to acquire necessary supplies if the printer is not functioning properly with respect to color, and black and white reproductions.	A.4	W, R, N	S/D, DA

7i **Monitor & Control**
 1.   The NCF can monitor AWIPS equipment operation and communication interfaces (e.g., SIMPACT and CPs). To verify this, the office should have available trouble-ticket worksheets that the Evaluation Officer can refer to and see if the NCF responded satisfactorily when communicating with office staffs in the resolution of problems, system malfunction, and general inquires. The NCF notifies the site, and keeps the office abreast of problem resolution, when it detects degradation and malfunctions of its equipment and communication interfaces.
 	
 Note: NCF cannot monitor anything beyond the LDAD firewall. The NCF can retransmit NWSTG products in a timely manner.
 	
 2.   AWIPS/NCF can detect and log the following system events:
 	
    a.   System errors (e.g., hardware and software faults).
 	
    b.   Security access violations.
 	
    c.   Unsuccessful login attempts.
 	
    d.   Equipment configuration changes.
 	
    e.   Equipment fail-over changes.
 	
    f.   Receipt of warning acknowledgment message.
 	
    g.   Site performance parameters, (e.g., runaway processes, disk, and CPU utilization).
 	
    h.   Data transmitted from the NCF.
 	
    i.   Determine and relay product status and disposition.
 	
 3.   The NCF can restart AWIPS and its subsystem components after a significant outage. The NCF can re-send select products specified by the site.
 	
 4.   The NCF can set the AWIPS clock and ensure that all local site clocks are synchronized within 1
	A.1	W, R, N	S/D, E

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
second of the AWIPS clock after system restart. The NCF also ensures that all AWIPS clocks are synchronized to within 1 second of the National Institute of Standards and Technology (NIST) time signal broadcast letters (WWV) time. 5. Monitor LDAD from the NCF.			

7j   **Data Management**
1. AWIPS can perform the following functions locally:
 	
   a. Retrieve all locally stored data.
 	
   b. Create and modify locally stored data.
 	
   c. Copy any data to transportable media (e.g., tape, disk, etc.).
 	
   d. Transfer data from transportable media to any on-line storage device.
 	
   e. Add new WMO-header products and new types of data.
 	
   f. Modify data attributes for existing products.
 	
   g. Store data and specify length of time of storage or number of versions.
 	
   h. Specify the number of versions of a product to be retained.
 	
2. For the hydrologic data base, validate that AWIPS can retrieve requested Hydrometeorological Automated Data System (HADS) products without issuing any request messages via AFOS.
	A.8.1
	
	A.8.2
		W, R, N	S/D, F/HY

7k   **Archiving**
AWIPS can perform the following archiving functions locally:
 	
   a. Request products that do not require preprocessing on the SBN.
 	
   b. Retrieve local observations or locally generated official NWS products.
 	
   c. Display a list of data resident on archive media.
 	
   d. Automatically archive all SRRS official NWS products (alphanumeric text) issued by the site and retain each product for 31 days.
 	
   e. Archive other products issued by the site and retain each product.
	A.5.1	W, R, N	S/D, F/HY

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
f. Automatically archive all SRRS observations and retain each observation for 7 days.			
71 **System Message Handling** 1. Verify that all office-issued products are being sent over he WAN to the NCF. When AWIPS sends a high-priority product, e.g., warning message, to another AWIPS site (and the other site receives the product), the site gets an acknowledgment from NCF that the product was received. AWIPS can send data/products to other AWIPS sites via the ACN. The site gets an acknowledgment that the products were received: High Priority - Router Keep Alive Packets Medium PriorityOSPF Normal Priority - SNMP, X.400, DNS, Telnet, FTP (control) Low Priority - FTP (file transfer data, TCP port 20), SMTP (TCP port 25)	B.2.2.1	W, R, N	S/D, F/HY
2. Verify messages sent from other sites are not being stored multiple times. At the issuing office: a. AWIPS has the automatic capability to limit the number of stored duplicate text products. b. AWIPS provides the capability to create a list of text products to be checked to limit the number of stored duplicate product. As the receiving office, AWIPS stores only two versions of text products issued from other offices.	B.2.2.2		
3. The routing RFCs must verify that the routing of FTP products has been set to lower priority than official NWS products.	B.2.2.3		
4. AWIPS can specify point-to-point and point-to-multipoint distribution control parameters (i.e., addressing from one site to another or multiple).	B.2.2.4		
5. Request/Reply: AWIPS can request and receive text products from other AWIPS sites from the NCF via the ACN. **Note:** No RedBook graphics can be requested.	B.2.2.5		
6. Verify that the RFC, which has communications responsibility for your site AWIPS' products, can receive Priority 1 (warning messages) and retransmit them to other offices within their	B.2.2.1		

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:
communication domain.			
7. Messages may be sent from AWIPS sites to both AWIPS and AFOS sites via MHZ. The sending site should not need to know whether the receiving site has AWIPS or AFOS. Delivery of these products should be timely.	B.2.2.6		

7n **Product Availability**
1. AWIPS automatically receives the following data, reliably stores products, and makes them available to workstations:
 	
   a. All alphanumeric text products transmitted over the SBN predesignated for storage at the site.
 	
   b. All satellite products (either GOES-8 or GOES-9) predesignated for storage at the site.
 	
   c. All model outputs predesignated for storage at the site.
 	
   d. All lightning data predesignated for storage at the site.
 	
2. AWIPS transmits all office generated official NWS products over the ACN and to the NWSTG.
 	
3. The WSH will provide your region with reports concerning the reliability of data receipt/transmit at your site during the evaluation period. When the period begins, WSH will evaluate the reliability of select products from the above categories over a 30-day period. Performance is expected to be 98.5 % or better for the sample period. If the performance is less than this additional time will be needed to validate that AWIPS is operating at the stated level.
	B.1.1	W, R	S/D, F/HY

7. System Functions and Security	Commissioning Test Procedures	Criteria Apply To:	Input Provided By:

7o **Local Applications Under AWIPS**
Validate that AWIPS has an environment that supports local software development in standard full language FORTRAN and standard full language ANSI C with the following capabilities available to local application developers:
 	
   a. A full-screen editor producing ASCII text output.
 	
   b. Compilers, linkers, loaders, and interactive debugging facilities that are capable of calling subroutines written in either language.
 	
   c. Ability to compile, link, and load any subroutine that is part of AWIPS non-Commercial Off-The-Shelf (COTS) software or locally written into locally developed or modified software.
 	
   d. Source code library management tools.
 	
   e. Capability of local applications to execute all system commands.
 	
   f. Capability to document local applications.
 	
   g. Provide a Structured Query Language (SQL).
	A.6.1
	A.6.2
		W, R	